

Serial No. 10/539,248
Docket No. PTGF-03106US

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REMARKS

Entry of this Amendment is believed proper under 37 CFR § 1.116 since no new issues are being presented to the Examiner which would require further consideration and/or search.

Claims 1-9, 11-24, and 26-31 are all the claims presently pending in the application.

Claims 1, 14, 15, and 16 have been amended to more particularly define the invention. Claims 4-10 and 19-25 have been withdrawn as being un-elected.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-3, 11-18, and 26-31 stand rejected upon alleged informalities. (e.g., 35 U.S.C. § 112, first paragraph).

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention, as exemplified by claim 1, is directed to a phosphor mixture for converting ultraviolet light or blue light emitted from a light emitting element into a visible white radiation, including a first phosphor selected from a group including of an alkaline earth metal antimonate including a fluoroantimonate, and a derivative of the alkaline earth metal antimonate including a fluoroantimonate, and a second phosphor selected from a group including of a manganese(IV)-activated compound including an antimonate, a manganese(IV)-activated compound including a silicate-germinate, and a manganese(IV)-activated compound including an aluminate, and a third phosphor selected from a group including a

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europium-activated silicate-germanate, and a sensitizer selected from a group including Eu(II) and Mn(II) as a secondary activator and having an orange color, an orange-red color, or a dark red color in a spectrum range over 600nm. The third phosphor is represented by general formula $Me^I_x Me^{II}_y (B, Si, P)_z O_n X_m : Eu, Mn$. Me^I comprises at least one element selected from group II and group III metals of the Periodic Table and/or at least one lanthanide ion selected from the group including Eu, Pr, Sm, Gd, Dy, and Ce. Me^{II} comprises at least one monovalent cation. X comprises Cl, F, or Br, $0 \leq x \leq 10$, $0 \leq y \leq 12$, $0 < a \leq 6$, $0 < n \leq 24$, $0 \leq m \leq 16$, and B may be completely or partially replaced with P, Si, Ga, or Al and may be partially replaced with V, Nb, Ta, Ge, W, or Mo. The phosphor mixture has different emission bands that is brought to a state of broad continuous emission of about 380 to 780 nm, the phosphor mixture having a color temperature of about 10,000 K with blue-white color to 6,500 K with daylight color and having a color temperature of about 3,000 K with warm white color to 2,000 K with twilight color of reddish yellow by virtue of the superposition of the emission band.

In conventional phosphors, the color rendering index Ra may be disadvantageously as low as 89 to 90, the necessary broadband red component and other light emitting component may be absent, and may not have long-term stability. (See Application at page 3, lines 6-18).

The claimed invention, on the other hand, may produce light having color rendering properties close to those in natural light or incandescent lamp light, and a color rendering index Ra above 90, and may emit a visible white radiation having a high level of color rendering properties. (See Application at page 3, line 19-page 4, line 5).

II. THE 35 USC §112, FIRST PARAGRAPH REJECTION

Claims 1-3, 11-18, and 26-31 stand rejected under 35 U.S.C. §112, first paragraph. The claims have been amended, above, to overcome this rejection. Support for the claim

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amendments may be found on at least page 12, line 8, and page 30, lines 1-15, that sufficiently enables one of ordinary skill in the art to make or use the claimed invention. More specifically, support for the claimed features, "wherein the phosphor mixture has different emission bands that is brought to a state of broad continuous emission of about 380 to 780 nm, the phosphor mixture having a color temperature of about 10,000 K with blue-white color to 6,500 K with daylight color and having a color temperature of about 3,000 K with warm white color to 2,000 K with twilight color of reddish yellow by virtue of the superposition of the emission band" may be found on at least page 17, lines 8-30 and page 34, line 23-page 36, line 15 of the Specification. Further, support for the claimed, "monovalent cation" may be found on at least page 56, line 12-13 of the Specification.

Also, as supported by at least page 12, line 25-page 14, line 5; and page 30, line 15-page 31, having one of the elements within the parenthesis, "(B, Si, P)_a" is sufficient to satisfy the claimed feature, "a borate-silicate-phosphate."

Further, the MPEP does not require that if certain claimed features are in the Markush group format, then all the claimed features must be in the Markush format. In fact, MPEP 2173.05(h) states that alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims (including a mix of claimed features in Markush group or regular format). Here, the amendments to claims 1, 14, 15, 16 render the contents of the claimed "a phosphor mixture" clear.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

The Examiner has not rejected claims 1-9, 11-24, and 26-31 on the merits. Therefore, these claims are allowable.

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III. FORMAL MATTERS AND CONCLUSION

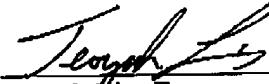
In view of the foregoing, Applicant submits that claims 1-9, 11-24, and 26-31, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 5/4/10

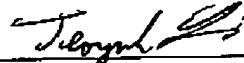


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CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that I am filing this Amendment Under 37 CFR §1.116 by facsimile with the United States Patent and Trademark Office to Examiner Donald Raleigh, Group Art Unit 2879 at fax number (571) 273-8300 this 4th day of May, 2010.



Jeoyuh Lin, Esq.
Reg. No. 56,032